

SBMicro 2023

Monday, August 28th

Tutorials

Time	Title/Authors
09:00 – 10:40	2D Materials and their Role in Future Electronics Frank Schwierz, Technische Universität Ilmenau, Germany
11:00 – 12:40	High Performance Quantum Computing in Nanoelectronics Adam W. Skorek, University of Québec, Canada
14:00 – 15:20	From micro-semiconductor devices to the discovery of the black hole in the Milky way Edmundo Gutierrez, National Institute for Astrophysics, Optics and Electronics, Mexico
15:40 – 17:00	Reliability of Metal Gate / High-K CMOS devices Andreas Kerber, Intel, EUA

Tuesday, August 29th

Session I – Electrical Characterization

Time	Title/Authors
14:20	CMOS Ring Oscillator Aging Andreas Kerber, Intel, U.S.A.
15:00	Influence of the source/drain doping region on the reconfigurability of BESOI MOSFET Daniel Ramos, Ricardo Rangel, Katia Sasaki, Pedro Duarte and João Martino
15:20	Experimental Characterization of Switching Properties of ReRAM Devices by the Capacitance Measurements Fernando Costa, Aseel Zeinati, Renan Trevisoli, Durga Misra and Rodrigo Doria

Poster Session I

Time	Title/Authors
15:40 – 17:00	Analysis of Low-Dropout Voltage Regulator designed with Gate-All Around nanosheet transistors Rayana Carvalho, João Martino and Paula Agopian

	<p>Anti-reflective system for photodetectors to reduce the reflectance in the SWIR range</p> <p>Marcelo Rua, Rudy Kawabata, Paulo Victor Costa, Ana Carolina Monteiro, Leila Rosa Cruz, Carlos Luiz Ferreira and Patricia Souza</p>
	<p>Development of a robust system for substrate preparation and growth of MoS₂ thin films for application in thermoelectric</p> <p>Flavio Assahi, João Ider, Adhimar Oliveira, Rero Rubinger and Carla Rubinger</p>
	<p>Development of resistors with TaxNy deposited by RF sputtering using lithography technique.</p> <p>Rodrigo Reigota César, Melissa Mederos Vidal, Ednan Joanni, Vivian Andrade, Ricardo Teixeira and José Alexandre Diniz</p>
	<p>Low-Cost Ultraviolet Radiation Sensor Using Epoxy-Resin Optical Filters Over MOS Photodiodes</p> <p>Fernando Lucas Nogueira Santos, Sebastião dos Santos Filho and João Martino</p>
	<p>Mobility Extraction Methods in AlGa_N/Ga_N HEMTs</p> <p>Eduardo Panzo, Eddy Simoen, Nilton Graciano Júnior, Maria Glória Caño de Andrade</p>
	<p>Reliability Aspects and Study of Copper Seed Deposition on Polyimide via Sputtering</p> <p>Leonardo Shimizu Yojo, Favero Santos, Fagnaldo Braga Pontes, Carlos Raimundo Pereira dos Santos, Willyan Hasenkamp and Elvio Carlos Dutra e Silva Jr.</p>
	<p>Skin-on-a-chip: a Microfluidic Device Development using a Photolithography-based Microfabrication Process</p> <p>Luíse Cambuzzi Dalló, Sabrina Esperança Nunes, Samuel Tavares Maraschin, Letícia de Menezes Mariano, Tayná Copes Rodrigues, Ariadna Shuck, Sandro Binsfeld Ferreira, Iara Fernandes and Celso Peter</p>
	<p>The Five Priority Topics of Microelectronics Training to Meet Future Societal Challenges</p> <p>Olivier Bonnaud</p>

Wednesday, August 30th

Session II – Photovoltaics and Photodetectors

Time	Title/Authors
14:00	<p>Measurement and Characterization of a PV Cell for Indoor Visible Light Communication</p> <p>Vitória Monteiro, Diego Maran de Mattos, Paulo César Comasseto Aguirre, Lucas Compassi Severo and Alessandro Gonçalves Girardi</p>
14:20	<p>Analytical and numerical simulations of surface-modified glass coverslips to enhance energy harvesting on indoor MOS solar cells</p> <p>Gabriel Louzada, Marcos Watanabe and Sebastião dos Santos Filho</p>

14:40	Electrical Characterization and Modeling of SiO/SiO ₂ Layers for Passivation of Indoor MOS Solar Cells for Energy Harvesting William Shiga, Marcos Watanabe and Sebastião dos Santos Filho
15:00	Effect of the Substrate Bias on the Electrical Characteristics of UTBB PIN Diodes Working as Photodetectors Fernando Oliveira Souza da Silva and Rodrigo Doria

Session III – Device and Circuit Simulation

Time	Title/Authors
15:40	Monitoring the Temperature of a Nanowire SOI MOSFET Using a Neighbor PIN Diode Felipe Carnielli and Marcelo Pavanello
16:00	Analysis of the trade-off between voltage gain and frequency response of OTA designed using experimental data of omega-gate nanowire SOI MOSFETs Gustavo de Araujo, João Martino and Paula Agopian
16:20	Junctionless Transistors Based Current Mirrors: Analog Figures of Merit Dependence on the Devices Width Andre Shibutani, Renan Trevisoli and Rodrigo Doria
16:40	Temperature influence on Operational Transconductance Amplifier designed with triple gate SOI FinFETs Henrique Hilkner, Paula Agopian and João Martino

Thursday, August 31st

Session IV - Transistor modeling and characterization

Time	Title/Authors
09:00	MOSFETs with Stacked 2D Nanosheet Channels – An Auspicious Option to Delay Forever Frank Schwierz, Technische Universität Ilmenau, Germany
09:40	Compact Modeling of Transition Metal Dichalcogenide Ballistic Transistors Adelcio de Souza, Daniel Ricardo Celino and Murilo Araujo Romero
10:00	Unveiling the Potential Profile for Channel Access in Staggered Organic Thin-Film Transistors Stefan Blawid and Shabnam Donnhäuser
10:20	Experimental Comparison of Threshold Voltage Extraction Methods in SOI Nanowire Transistors

	Vinícius Prates, Marcelo Pavanello and Michelly de Souza
10:40	Interface Trap Density of Commercial 1.7 kV SiC Power MOSFETs Lucas Spejo, Samuel Lucidi, Marcos Vinicius Puydinger dos Santos, José Alexandre Diniz and Renato Amaral Minamisawa

Session V - Effects of Temperature on Semiconductor Devices

Time	Title/Authors
11:20	Cryogenic characterization and modeling of advanced CMOS technologies at 4.2 K and below Edmundo Gutierrez, National Institute for Astrophysics, Optics and Electronics, Mexico
12:00	Electrical Characterization of Ω -Gate Nanowire MOSFETs Down to Cryogenic Temperatures Jefferson Almeida Matos, Michelly de Souza, Mikael Cassé, Sylvain Barraud, Olivier Faynot and Marcelo Antonio Pavanello
12:20	Low field Mobility Degradation Factors Temperature Dependence in Two level Stacked Nanowire MOSFETs from 120K to 400K Jaime Rodrigues, Mikael Cassé, Sylvain Barraud, Maud Vinet, Olivier Faynot and Marcelo Pavanello
12:40	Study of the effect of multiple conduction on threshold voltage in a MIS-HEMT from 450 K down to 200 K Welder Perina, João Martino, Eddy Simoen, Uthayasankaran Peralagu, Nadine Collaert and Paula Agopian

Poster Session II

Time	Title/Authors
14:20 – 17:00	Comparing Rectangular and ELT MOSFET layouts under TID Paulo Garcia Junior, Guilherme I. Grandesi, Alexis Cristiano Vilas Bôas, Renato Giacomini, Roberto Baginski Batista Santos, Luis Eduardo Seixas and Marcilei Aparecida Guazzelli
	Influence of gate insulator and AlGaN barrier layer on MISHEMT conduction mechanisms Bruno Canales, João Martino and Paula Agopian
	Innovative Radiation-Hardened-By-Design Technique to Improve the Tolerance of the Total Ionizing Dose (X-Ray) Effects on the Mismatching of the Analog MOSFETs Vinicius Vono Peruzzi, Gabriel Augusto da Silva and Salvador Pinillos Gimenez
	MicroTec TCAD Software Use for Micro- and Nanostructure Course at UAS Jena

	Michael Obrecht and Michael Rueb
	<p>Multiband Rectenna for Radio Frequency Energy Harvesting Applied to Wireless Sensor Network</p> <p>Yago Souto and Francisco de Assis Brito Filho</p>
	<p>Novel nanotube multiquantum dot devices</p> <p>Roger Tormo Queralt, Christoffer Bo Moller, David A. Czaplewski, Gernot Gruber, Marta Cagetti, Stefan Forstner, Nuria Urgell-Olle, Jennifer Anais Sanchez-Naranjo, Chandan Samantha, Christina S. Miller and Adrian Bachtold</p>
	<p>Preparation and characterization of PVC-PMMA polymer blends as flexible bases for III-V photovoltaics</p> <p>Graciana de Sousa, Luciana Dornelas Pinto, Fabiele Collovini Tavares, Guillermo Júnior Nogueira Soares, Rogério Valaski, Roberto Jakomin, Maurício Pamplona Pires and Patrícia Lustoza Souza</p>
	<p>Trade-off between channel length and mechanical stress in the Operational Transconductance Amplifier designed with SOI FinFET</p> <p>Arllen Ribeiro, Gustavo de Araujo, João Martino and Paula Agopian</p>

Friday, September 1st

Session VI – Sensors and Actuators

Time	Title/Authors
08:40	Microwave-Based Complementary Split-Ring Resonator for the Detection of Variations in Aqueous Media Reinaldo Velasquez, Diego Tami, Gilberto Medeiros Ribeiro, Cássio Gonçalves do Rego and Jhonattan Cordoba Ramirez
09:00	Fabrication and characterization of polymer CMUTs Gustavo Marcati A. Alves, Chi Nan Pai and Gustavo Pamplona Rehder
09:20	Frugal Love wave acoustic sensor full platform for in situ operation in liquids Ollivier TAMARIN, Wejden GONGI, Maxence RUBE, Martine SEBELOUE, Idris SADLI, Dominique REBIERE, Hatem BEN OUADA and Corinne DEJOURS
09:40	Assembly of Piezoelectric MEMS Vibration Sensor for Cochlear Implant Ricardo Teixeira, Alexander Flacker, Giuliano Maiolini, Rodrigo Reigota César, Guilherme Cartagena Miron and Júlio Apolinário Cordioli
10:00	Electrical characterization of Er-doped PANI/MPS Schottky junctions for sensing naphthalene João Henrique Pinton, Lucas Costa Leite, Pedro Henrique Gomes Lopes and Danilo Huanca
10:20	Study of a graphene optical sensor applied in glottic tumor Jacilene Medeiros, Fernando Cesar Rufino, Giuseppe Antonio Cirino, Arlindo Neto Montagnoli and José Alexandre Diniz

Session VII – Novel Materials and Devices

Time	Title/Authors
12:00	Additive Processed ZnO Transparent Vertical Field Effect Transistor Sajid Hussain, Fawad Saeed, Lei Wei and Tayeb Mohammed Brahim
12:20	Laser-induced graphene in flexible PI/PDMS polymer aiming at application in pressure sensors Deissy Johanna Feria Garnica, Alexandre Tavares Lopes, Daniel Purificação, Inés Pereyra and Marcelo N.P. Carreño
12:40	Fabrication and Characterization of High Performance Supercapacitors with NiCo ₂ O ₄ /g-C ₃ N ₄ Tarcísio Lessa, Leandro Marques Samyn, Suresh Babu Rajendran, Matheus Pereira Almeida and Ana L.F. Barros

13:00	Characterization of graphene monolayer on a silicon substrate by chemical transfer and lamination for the fabrication of transistors Letícia Mariano, Sabrina Esperança Nunes, Samuel Tavares da Silva Maraschin, Luíse Cambuzzi Dalló, Sandro Binsfeld Ferreira and Celso Peter
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Session VIII – Photonics and Optoelectronics

Time	Title/Authors
14:40	Development of Flexible and Conductive PVA-based Material for Wearable Sensor Tayná Rodrigues, Sabrina E. Nunes, Luíse Cambuzzi Dalló, Letícia M. Mariano, Iara J. Fernandes, Tatiana L. A. C. Rocha and Celso R. Peter
15:00	Mapping and Optimization of Oscillator Strength in Quantum Bragg Mirror Detectors as a Function of their Dimensions Jose Ruiz, Pedro H. Pereira, Germano M. Penello, Guilherme M. Torelly, Patricia L. Souza and Mauricio P. Pires
15:20	GaAs/AlGaAs based quantum Bragg mirror detector Germano Maioli Penello, Pedro Henrique Pereira, Guilherme Torelly, Fernando Fernandes, James Rushing, Jacob A. Tenorio, Paul Simmonds and Alain Quivy
15:40	Ultra-Compact Low-Loss Photonic Crystal Waveguide in Serpentine Form Renan Silva, Gabriel Felipe Novy, Omar Paranaíba Neto and Jhonattan C. Ramirez
16:00	Dark Current and Electron Activation Energy in Quantum Bragg Mirror Detectors (QBMDs) Luis Angel Monzon, Pedro Henrique Pereira, Patricia Lustosa de Souza, Germano Maioli Penello and Mauricio Pamplona Pires
16:20	Unlocking the Potential of Photonic Crystals: Exploring Designs for High-Performance Switches Gabriel Novy, Omar Vilela Neto, Jhonattan Cordoba, Guilherme S. C. Caporali and Talles E. M. Marques